A Listing of the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-33. (Cancelled)

34. (Previously presented) A bond pad structure, comprising:

a semiconductor substrate;

a passivating layer forming multiple free-standing vertical islands to provide interlocking grid structures over said semiconductor substrate, wherein the vertical islands are separated by openings in said passivating layer;

a barrier layer formed of tantalum nitride over said passivating layer and in said openings; and

a conducting pad formed within said openings and over said interlocking grid structures and over said barrier layer, whereby an upper surface of said conductive pad provides improved adhesion for subsequently formed bonds.

35. (Previously presented) The bond pad structure of Claim 34, wherein said conductive pad is formed of copper.

36. (Original) The bond pad structure of claim 34, wherein said passivating layer is selected from the group consisting of silicon oxide, silicon nitride and polyimide.

37. (Previously presented) A bond pad structure, comprising:

a semiconductor substrate;

comprising interlocking grid structures, formed over said semiconductor substrate;

a passivating layer forms said, interlocking grid structures, having multiple openings to said interlocking grid structures;

a barrier layer formed of tantalum nitride over said passivating layer and in said openings;

a conducting pad formed over said interlocking grid structures and over said barrier layer, whereby an upper surface of said conductive pad provides improved adhesion for subsequently formed bonds,

wherein said bond pad forms an interlocking grid array in the bond pad via contact region, which is approximately 100 by 100 microns square and the size of the island structures are from about 10 to 25 microns in width, approximately 4 microns in height, and from about 4 to 10 in number, of interlocking grid structures, increasing surface area for improved adhesion.

38. (Previously presented) The bond pad structure of Claim 34, wherein said conductive bond pad is formed of aluminum.

39. (Cancelled)

40. (Previously presented) A bond pad structure for a semiconductor device, the structure comprising:

an insulator layer adjacent to a semiconductor substrate;

a metal wiring layer adjacent to the insulator layer;

a passivation layer adjacent to the metal wiring layer, wherein at least a portion of the passivation layer is configured to provide a plurality of island structures separated by spaces that expose a portion of the underlying metal wiring layer;

a metal barrier layer covering the passivation layer and the exposed portions of the metal wiring layer, wherein the metal barrier layer conforms to a shape provided by the island structures and does not completely fill the spaces between the island structures; and

a metal pad layer covering the metal barrier layer, wherein the metal pad layer fills the spaces between the island structures not filled by the metal barrier layer and rises above the island structures.

41. (Previously presented) The bond pad structure of claim 40 wherein the metal barrier layer is substantially the same thickness throughout the bond pad structure.

42. (Cancelled)

43. (Previously presented) The bond pad structure of claim 40 wherein the passivation layer is selected from the group consisting of silicon oxide, silicon nitride and polyimide.

44. (Previously presented) The bond pad structure of claim 40 wherein the metal pad layer is formed of aluminum.

45. (Previously presented) The bond pad structure of claim 40 wherein the metal barrier layer is formed of tantalum nitride.

46. (Previously presented) A bond pad structure for a semiconductor device, the structure comprising:

a first metal layer overlaying an insulator layer;

a plurality of vertical structures extending from the first metal layer upward and separated from each other by exposed portions of the first metal layer, wherein the vertical structures are formed from a passivating material; and

a second metal layer covering the vertical structures and the exposed portions of the first metal layer, wherein the second metal layer substantially conforms to a non-planer shape provided by the vertical structures, and

a third metal layer covering the second metal layer, wherein the third metal layer surrounds and rises above each of the vertical structures.

47. (Cancelled)

48. (Previously presented) The bond pad structure of claim 46 wherein the second metal layer is substantially the same thickness over both the vertical structures and the exposed portions of the first metal layer.

49. (Previously presented) The bond pad structure of claim 46 wherein the vertical structures are substantially the same size.